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NEWS.

DR. CARL MEZ has been called to a professorship of botany at the University of Breslau.

THE *Kew Bulletin* for January contains a complete list of Kew publications from 1841 to 1895 inclusive.

THE DEATH of Professor Dr. Alexander Batalin, director of the Imperial Botanical Garden at St. Petersburg, is announced.

DR. WLADISLAW ROTHERT, *privat docent*, has been called to the assistant professorship of botany in the University of Kazan.

PROFESSOR L. H. PAMMEL has distributed his first fascicle of Iowa plants. The others will be distributed as soon as the material is ready.

DR. CONSTANTIN VON ETTINGSHAUSEN, until 1896 professor of botany and paleontology in the University of Graz, died on the first of February.

DURING THE YEAR 1896 the Royal Gardens at Kew were visited by 1,396,875 persons, the largest attendance upon any one day being 86,399 on May 25.

A NEW botanical text-book by Dr. W. A. Setchell is announced by The Macmillan Company as in press, bearing the title *Laboratory Practice for Beginners in Botany*.

MISS BERTHA STONEMAN, who received the degree of Doctor of Science at Cornell University last June, is continuing her investigations on fungi in the botanical department of the same institution.

THE MACMILLAN COMPANY announces that the Bonn text-book of botany translated by Dr. H. C. Porter of the University of Pennsylvania, revised and edited by A. C. Seward, will be ready in March.

M. ED. BONNET has concluded that *Phaseolus vulgaris* was unknown in the Old World before the discovery of America. His discussion appears in several recent numbers of the *Jour. de Botanique*.

THE DIRECTORS of the Biltmore Herbarium have sent out a list of about 500 plants for exchange, mostly collected in western North Carolina, but containing quite a number of rare and interesting forms. Correspondence is to be addressed to the curator, C. D. Beadle, Biltmore. N. C.

THE "Reale Istituto Lombardo di Scienze e Lettere" of Milan has awarded a prize of *M* 800 to our associate, Professor Dr. J. B. DeToni, for a treatise upon the life and works of Leonardo da Vinci.

THE EDITION of *Uredineæ Americanæ Exsiccatae*, prepared by Mr. M. A. Carleton, one fascicle only having been issued, has been exhausted. Owing to pressure of other work the author is obliged to permanently discontinue the series.

"THE FERN-COLLECTOR'S HANDBOOK AND HERBARIUM," by Miss S. F. Price, is announced for speedy publication by Messrs. Henry Holt & Co. It is intended to be a popular work, and will contain seventy-two large plates, most of them life size.

PROFESSOR D. P. PENHALLOW calls attention to the following correction that should be made in his paper on *Myelopteris*, which was published in the BOTANICAL GAZETTE for January last: "resin canal" should be changed to "gum canal" on page 28 last line, and on page 29 line 16.

MR. AUG. SAUPE, R. A., sculptor, prepared a death mask of the late Baron Ferdinand von Müller. Copies of this may be obtained. Mr. Saupe is engaged in modeling a life-size bust and a medallion, copies of which will also be for sale. His address is 85 Coppin street, Richmond, Victoria, Australia.

THE BOOK entitled *The Botanists of Philadelphia and their Work*, whose preparation by Dr. John W. Harshberger, of the University of Pennsylvania, was announced about a year ago, is now completed and lies in manuscript. It will contain when printed about 500 pages of printed matter and fifty full-page plates.

DR. PAUL TAUBERT, of the Royal Botanical Museum of Berlin, who has been engaged in botanical exploration of the Amazon region of northern Brazil for a year past, fell a victim to the yellow fever at Manaos on the first of January last. He was a special student of the Leguminosae, which group he elaborated for Engler and Prantl's *Natürlichen Pflanzenfamilien*.

A NEW GERMAN WEEKLY, *Die Umschau*, began publication January 1 of this year, under the editorship of Dr. J. H. Bechhold. It has a broad field as the chronicler of the progress in science, industry, literature, and art. Among the collaborators, Professor Dr. Magnus and privat-docent Dr. A. Nestler are announced for the science of botany. The yearly subscription is *M* 10.

WE ARE INFORMED that the extensive herbarium of the late Dr. J. F. Joor is offered for sale. The collection is the result of twenty years of the most industrious work, principally in Texas, though frequent trips were made

along the gulf coast of Mississippi and into the swamp regions of Louisiana. Details may be learned by addressing Mrs. Joor, 6063 Laurel street, New Orleans.

THE SILVER MEDAL of the Veitch Memorial Fund of England has been presented to Professor L. H. Bailey, "in recognition of his efforts, by means of his lectures and his writings, to place the cultivation of plants on a scientific basis, to promote the extension of horticultural education, and by numerous trials and experiments, to improve and render more productive plants grown for economic purposes."

THE GAMOPETALÆ of Gray's *Synoptical Flora* were issued by the Smithsonian Institution as "Miscellaneous Collection no. 591." The stock having been exhausted, at the request of Mr. F. V. Coville the institution has issued recently 150 additional copies which are now ready for distribution. The price has been fixed at \$2.50, and those desirous of purchasing the work should send this amount by money order or draft to the Smithsonian Institution, Washington, D. C.

THE FIELD COLUMBIAN MUSEUM of Chicago has been so fortunate as to procure from the widow of Dr. Arthur Schott his complete personal herbarium, containing his collections in Campeche, Tabasco, Upper Mexico, Mexican Boundary Survey, Hungary. The nine hundred or more Yucatan plants will prove of great value to Dr. Millspaugh, the Curator of Botany, in his interesting series of "Contributions to the Flora of Yucatan." We are glad to note that the Muesum is alive to the occasions presented to increase the utility and status of its Botanical Department.

AT THE COMING Toronto meeting of the British Association, August 18 to 25, members of the American Association will be admitted as members. Section K (Botany) will hold its sessions under the presidency of Professor H. Marshall Ward. It is believed that the meeting will be very largely of an international character, and it is hoped that American botanists will contribute to that result both by their presence and their papers. Detailed information may be obtained by addressing Professor E. C. Jeffrey, University of Toronto, Secretary of Section K.

MR. JAMES LLOYD, author of *Flore de l'Ouest de la France*, who died May 10, 1896, left his fortune and collection to the city of Angers. Aside from careful directions as to the care and autonomy of the collections, it was directed that a curator be appointed by the mayor of the city, to be selected from three candidates proposed by the Botanical Society of France. Provision is made for the salary of the curator and for his prosecution of the work on the flora of the region in which Mr. Lloyd was interested. The Botanical Society is now asking for applicants from which they may select three, all applications to be made on or before March 15. Mr. Lloyd

expressed his preference that this position be given, not to university men, but to some "humble botanist, a lover of nature."

MR. LORENZO N. JOHNSON died at Boulder, Colorado, February 27, at the age of 34. He had been in Colorado for a year, hoping to recover from the pulmonary trouble which caused his death. He was an instructor in the University of Michigan for three and a half years, being especially interested in the fresh water algæ, and having published several papers upon Desmidiaceæ. He collected the fungi of Ann Arbor so assiduously during his connection with the university as to make their collection of indigenous species one of the best in the west. His aptitude for systematic and descriptive work must have insured a scientific career of unusual attainment. Aside from his connection with the University of Michigan he was engaged for several summers at Cold Spring Harbor, where he had charge of the instruction in botany.

AT THE LAST MEETING of the Botanical Seminar of the University of Nebraska the following papers were presented: The periodicity of flowering, by Mr. Clements; Herbaceous vegetation forms, by Mr. Pound; The karyology of the ascomycetes (a review), by Mr. Shear; Organogeny of the genus *Prunus*, by Mr. Bell. The Seminar has had a semester of unusual enthusiasm and activity. Since the beginning of the college year there have been four public meetings in which twelve papers have been read; and symposia upon the laboratory method, phytogeography, and systematic mycology have been held. For the present semester six meetings have been arranged for, at which eleven papers will be presented; and symposia will be held upon histogenesis and physiology. Dr. Trelease will deliver the annual address, his subject being "The description of a species."

A SECOND BULLETIN of the New York Botanical Garden gives additional information as to plans. The many problems that have presented themselves for solution are discussed. The museum building, with a frontage of 304 feet, with two equal lateral wings whose total completed length will be about 200 feet, will give ample space for collections and laboratories. The allotment of the grounds is of interest; buildings, with decorative approaches and surroundings, about 25 acres; pines and other coniferous trees (90 to 100 species), 30 acres; deciduous trees (about 275 species), 70 acres; natural forest, mostly undisturbed, 65 acres; shrubs and small trees, 15 acres; herbaceous grounds for scientific arrangement, 8 acres; bog garden, 5 acres; lakes and ponds (exclusive of the Bronx), 6 acres; meadows, 10 acres; besides various provisions for aquatics, vines, rockeries, etc. The bulletin also contains Dr. Britton's address on "Botanical Gardens."

The MACMILLAN COMPANY announces that the compilation of an *Encyclopedia of American Horticulture* has been begun under the editorial supervision

of Professor L. H. Bailey, of the Cornell University. There has never been a really good and adequate presentation of American horticulture, and this book proposes to make good the want. It is to cover horticulture in its widest sense, pomology, floriculture, vegetable gardening, greenhouse matters, ornamental gardening, the botany of cultivated plants, and the like. The work will consist of signed articles by specialists, profusely illustrated by engravings made expressly for it. The articles will be arranged alphabetically, and it is expected that the number of entries will be about six thousand, comprised in three large volumes dated 1900. The earnest cooperation of every student of horticultural pursuits and every lover of rural life is solicited, in order that the work may be worthy of the opening of the twentieth century.

THE VERMONT Botanical Club was organized two years ago, and now has sixty active members. It meets twice yearly, in summer for a field meeting, in winter for the reading of papers. The second annual meeting was held in Burlington, February 5 and 6, at which twenty papers were read. A paper of special interest was that by Mr. C. G. Pringle, which was a sketch of his botanical explorations in the state, chiefly between 1873 and 1880. The paper is published in full in the *Burlington Daily Free Press* of February 9, and is really a valuable autobiographical sketch which many botanists would be glad to possess. The results of Mr. Pringle's early collections among the mountains of Vermont are well known, and their lasting evidence is found in numerous herbaria. It is a great pleasure, however, to read this more vivid account of his most notable discoveries, and to catch the flavor of his rare experiences on Willoughby mountain and in Smuggler's notch, and in the other boreal regions whose rare plants he so successfully brought to light. This prince of collectors modestly remarks that he "was only the first available man" for such work, but the recipients of his plants will contend that he was specially fitted to it.

The club is actively prosecuting a botanical survey of the state, and intends to publish a revised "Flora of Vermont" within two years. The officers for the ensuing year are: Ezra Brainerd, President of Middlebury College, President; Cyrus G. Pringle, Charlotte, Vice President; and L. R. Jones, University of Vermont, Secretary.

THE REPORT of the Director of The Missouri Botanical Garden for 1896 contains much interesting information in reference to present equipment and future plans. Many causes have combined to compel the trustees to proceed slowly, so that those things which seem necessary to botanists, considering opportunities for research alone, could not be provided rapidly. The herbarium is estimated to contain about 258,629 specimens, of which 97,800 belong to the Engelmann herbarium, and 61,246 to the Bernhardt herbarium. The library contains 23,257 books and pamphlets, and 165,969 index cards. A very full statement is made of the provision for garden pupils, their course

of study, and the results. Probably the greatest general interest of the report will be found in the full setting forth of the plans for the future. The three principal objects to be kept in view are "beauty, instructiveness, and adaptability to research." In the development of the ground and plant houses the suggested lines are "for florists' forms, for horticulture, for educational purposes, for investigation." It is proposed that in the smaller plantation, devoted to the flora of the United States, the arrangement shall be based upon the *Genera Plantarum* of Bentham and Hooker, as the one most familiar to American botanists, and that in the general synopsis of the larger tract the sequence of Engler and Prantl shall be used, as better expressing the phylogeny of plant groups. The Director proposes that for a few years all available income shall be devoted to the development of the North American synoptical plantation. Aside from the proposed planting, however, the attention of the trustees is called to the further need of facilities for research in the way of library, collections, enlarged laboratory space and facilities, and endowment. Much has been done already in the way of a strong development of the library and herbarium, as visiting and exchanging botanists have occasion to know, but the thought of the Director extends much further, as the following sentence will testify: "I hope to live to see the income of the Garden so ample that it shall claim among its regular employees men recognized as the equal of any in the country, if not in the world, in horticulture, vegetable physiology, morphology, paleobotany, phanerogams, pteridophytes, bryophytes, fungi, algæ, and lichens."

In this same connection it should be noted that candidates for the Doctor's degree in Washington University may elect research work in botany as their major, which puts at their disposal all the resources of the Garden, with Dr. Trelease to direct them. In the account of opportunities for research work in botany in American institutions published in the *BOTANICAL GAZETTE* for February the Missouri Botanic Garden was omitted, as for convenience only those institutions were considered which gave the Doctor's degree. The arrangement between Washington University and the Garden was overlooked, which very properly would have entitled the Garden and its equipment to representation.

A CIRCULAR of information has been received concerning the scientific division of the Allgemeine Gartenbau-Ausstellung to be opened in Hamburg in May, and to continue until September 1897. Certain features of this exhibition should attract the attention of botanists. The exhibits of the scientific division are divided into such groups as diseases of cultivated plants, animal and vegetable parasites injurious to agricultural products, plants and animals beneficial to agriculture, collections of plants and plant-parts made from a morphological or biological standpoint, results of scientific experiments upon pollination, etc. The exhibits will possess especial interest

for physiologists and pathologists, to stimulate whose best endeavor numerous special awards are to be made, in addition to the usual medals of honor. For this purpose the government has provided 20,000 francs. In the field of botany the following prizes may be noted :

Desideratum. Series no. 222. Researches leading to the solution of one or other of the following questions : (1) To give a method of isolating a bacterial toxin in a state of complete purity so as to determine its chemical formula, etc. (2) To indicate a practical process for the preparation of anti-toxins *in vitro*, by the electric current or any other physical or chemical agent applied to bacterial cultures. (3) To present a process permitting the extraction from antitoxic serums, the products of secretion, or liquids possessing the same properties, the body or bodies to which they owe their activity. (4) To investigate whether an antistreptococcic serum obtained from a single variety of streptococcus is efficacious against all the varieties of streptococcus pathogenic for man, or whether it is active against a certain number of these varieties. (5) Does the anti-diphtheritic serum possess, besides its antitoxic power (*i. e.*, of neutralizing the toxin), a power over the leucocytes, in virtue of which it stimulates them to destroy the bacilli of diphtheria? Is the measure of one power that of the other also? Prize 900 francs, to be divided into two.

Desideratum. Series no. 224. New researches tending to the solution of one of the two following questions : (1) A method of preserving for collections the bacterial cultures on solid media with their characters. (2) A process for the preservation of specimens of perishable plants for exhibition in museums. The objects must retain their natural aspect and colors, and the process must not be costly. Specimens are to be presented in proof. Prize 600 francs, to be divided if occasion requires.

Desideratum. Series no. 225. New researches on the organs of living beings by means of an apparatus using the X-rays. Prize 1000 francs.

Concours. Series no. 240. (B) The construction of a solid clinostat, not to exceed in price 500 francs, permitting the rotation on an axis in any direction of a potted plant having a maximum weight of six kilos, or of several plants whose total maximum weight is the same. (C) Exhibit an apparatus (or several) for the demonstration to a number of auditors of the process of cell division. Prize 300 francs.

Desideratum. Series no. 375. (B) To present a good manual of the infectious and organic diseases of forest trees, indicating especially the nature of the disease and the proper remedies ; and with the manual a collection of specimens as complete as possible showing the diseases. Prize 300 francs.

AT THE MEETING of the Academy of Science of St. Louis on the evening of February 1, 1897, Professor L. H. Pammel read a paper embodying ecological notes on some Colorado plants, observing that botanists who have

studied the Rocky mountain flora have frequently commented on the interest attached to the plants from an ecological standpoint, but most perplexing to the systematist. It is not strange that this should be the case, since there are great differences in altitude and soil and the relative humidity of the air varies greatly. This is a most prominent factor in the development of plant life. A cursory glance at the plains flora of eastern Colorado shows that there are representatives of a flora common from Texas to British America, and east to Indiana. We should not for a moment suppose that the species are identical in structure, since the conditions under which they occur are so different. Attention was called to the great abundance of plants disseminated by the wind, as *Cycloloma*, *Salsola*, *Solanum rostratum*, *Populus*, *Cercocarpus*, "fire-weeds" (*Epilobium spicatum* and *Arnica cordifolia*), *Hordeum jubatum*, *Elymus Sitanion*, etc. Plant migration may be studied to better advantage in the irrigated districts of the west than elsewhere, partly because the water carries many seeds and fruits in a mechanical way and partly because the soil is very favorable for the development of plants. Instances were cited where several foreign weeds are becoming abundant, as *Tragapogon porrifolius* and *Lactuca Scariola*. The latter, known as an introduced plant for more than a quarter of a century, is common at an altitude of 7500 feet in Clear creek cañon. Once having become acclimated, it is easy to see how prickly lettuce is widely disseminated.

Collectors appreciate the great importance of giving more attention to conditions under which plants thrive, such as phases of development, soil, climate, and altitudinal distribution. Structures of plants are produced to meet certain conditions. Under extreme conditions protective devices are more pronounced. In discussing some of the plants, Warming's classification into hydrophytes, xerophytes, halophytes, and mesophytes, was adopted. The mesophytes of eastern Iowa were compared with some of the xerophytes of western Iowa, such as *Yucca angustifolia*, *Mentzelia ornata*, *Liatris punctata*, etc. These increase in numbers in western Nebraska, and attain a maximum development in northern Colorado. In the foothills and mountains the mesophytes constitute a large class, although xerophytes are common in the dry, open, sunny places. The photosynthetic system is reduced to guard against excessive transpiration which would otherwise take place at high altitudes. The thick rootstock of alpine plants in dry, open places is an admirable protection against drouth and cold. In cañons where snow remains on the ground, plants do not need this protection. Halophytes are not numerous in species and genera. Hydrophytes are abundant at higher altitudes, where they occur in marshes and along streams.

At the meeting for February 15, Dr. Trelease exhibited "hair balls" removed from the stomach of a bull in Mexico, and showed that they were composed of the pointed barbed bristles of some species of prickly pear upon which the animal had fed.

At the meeting for March 1, Mr. William H. Rush presented a demonstration of the formation of carbon dioxide and alcohol as a result of the intramolecular respiration of seeds and other vegetable structures in an atmosphere containing no free oxygen. The theory of the dissolution and reconstruction of the living nitrogenous molecules was explained in connection with the experiments, and the different behavior of these molecules when supplied with or deprived of free oxygen, was indicated.

Mr. H. von Schrenk briefly described certain œdematous enlargements which he had observed at the beginning of the present winter near the root tips of specimens of *Salix nigra* growing along the edge of a body of water. The speaker compared these with the œdemata of tomato leaves and apple twigs, which were studied some years since at Cornell University.